AUGUSTANA COLLEGE

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U.S. Fish and Wildlife
Service, 9014 E. 21st St.
Tulsa, OK 74129

USFWS Tulsa EFSO Personnel:

Enumerated below are our specific comments on the USFWS "***Draft Environmental Assessment and Draft Oil and Gas Industry Conservation Plan for the American Burying Beetle in Oklahoma***" and the supplementary documents associated with its implementation as posted on the Federal Register. As a member of the small cohort of scientists working on investigations related to the ecology, life history, behavior, conservation and recovery of this endangered species, we hope that you find our comments focused on the scientific merit of the ICP useful. Feel free to contact us directly should you have any questions.

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Sincerely,

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Comments on the *Draft Environmental Assessment and Draft Oil and Gas Industry Conservation Plan for the American Burying Beetle in Oklahoma*

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***Comments italicized and in bold***

1. DRAFT OIL AND GAS INDUSTRY CONSERVATION PLAN

1a. Page 13: Gas Flaring. ***Flaring of excess natural gas at night has been shown to cause direct mortality of night-flying insects, and thus should be restricted by the USFWS within the ABB CPA during the active season of the species. Further studies on this should be encouraged. This is addressed tentatively on page 43.***

1b. Page 24: Areas Unfavorable for the ABB; "Pastures or grasslands that have been maintained through frequent mowing, grazing, or herbicide application at a height of 20 cm (8 inches) or less". ***Grazed or mowed pastures have been shown to hold high numbers of ABBs across the species range, including in Oklahoma. This statement should be clarified so that proponents and impactors are not confused and conclude that the Service is saying that simply because a grassland site has been recently disturbed through grazing, mowing, or fire, that it is unsuitable for ABBs. The term 'maintained' is ambiguous.***

1c. Page 28: American Burying Beetle Conservation Priority Areas; "..only buffers that intersected three or more other buffers were included as a CPA." ***Does this mean that clusters of four (4) or more 10K buffers were used or three (3) or more? It is unclear.***

1d. Page 28: American Burying Beetle Conservation Priority Areas; model construction. ***This is a very simple and straightforward method to model the CPA. I applaud the Service for choosing a rather unsophisticated technique (as opposed to modeling the CPA in GARP, BioClim or MaxEnt) so that stakeholders can understand the synthesis of the model. Other techniques might be more scientifically salient, but the advantage here is that the proposed model is amenable to updates easily. As such, the Service should update the CPA annually, not every three years. This would be easy to do, and would ensure the protection/recovery of the species should new sensitive populations be discovered. This would also allow the Service to encourage/facilitate ABB surveys in the inexplicable gap areas of the current CPA, such as that associated with Wagoner-Muskogee Counties and McIntosh County, which are likely artifacts of the model construction parameters rather than a reflection of the species landscape ecology. The other recommendation is to avoid arbitrarily dismissing sites with ABB presence that fall outside of the ten-year sliding window if the site(s) under consideration for removal from the CPA model have not been resurveyed in the intervening period to confirm absence. In other words, since the Service depends so heavily upon industry-initiated surveys for presence data, it is not reasonable to assume absence simply because a survey has not been conducted there recently. This is tentatively addressed on page 53.***

1e. Page 36: Temporary, Permanent Cover Change, and Permanent Impacts; Temporary Impacts. ***Designating 5 years as a temporary impact seems unreasonably long. If the habitat is rendered unsuitable for 5 years, the likelihood of recruitment back into the site is low; a metapopulation could become locally extinct in less than 5 years if a site is not sufficiently restored. ABBs are semelparous animals that survive a single year in most cases; 5 years in beetle generations would represent ~125 years in human generations. I am not sure that we would consider a disturbance to human habitation that takes 125 years to restore as "temporary".***

1f. Page 38: Total Impact Estimates within Planning Area; "Therefore, assuming that all ABB habitat may be occupied for the purpose of estimating take, a maximum of 32,234 acres of

occupied ABB habitat would be impacted". ***It is unclear based upon the provided rationale how the Service comes up with the 32,234 acres number from the parameters outlined before this. The Service needs to clarify this for the stakeholder community.***

1g. Page 48: Mitigation Ratios; "If the area has not become suitable for ABB use within 5 years following the temporary or permanent cover change impact start date, Permittees must provide additional mitigation prior to the end of the 5 year period, since the impact was actually permanent instead of temporary or permanent cover change". ***The Service does not specify how this will be monitored or evaluated. Will the service follow-up on this 5-year evaluation, since the agency is issuing the permit under a plan that applies for only two years? Permittee reports alone would seem a less-than-reliable method to gauge actual compliance.***

1h. Page 49 Mitigation Ratios. ***The Service should require some level of mitigation or other action for any impact on suitable ABB habitat within the CPA, whether ABBs are found to be present at the time of survey or not. A designated conservation priority area status should imply that all impacts have probable costs to the species. This should be the primary criteria that distinguishes the CPA from the broader ICP planning area, in addition to any mitigation ratio differences. This would seem a requirement to affect species recovery.***

1i. Page 57: ABB Range Expansion within the Planning Area. ***The Service has specifically named Noble and Cleveland Counties here, but should extend this to ANY county(ies) in which new records requires inclusion.***

1j. Page 76: 8.0 PREPARERS AND CONTRIBUTORS; U.S. Fish and Wildlife Service, OIPA and member Oil and Gas companies- Covered Activities data and descriptions. ***This plan appears to offer much needed solutions to the oil and natural gas industry with respect to ESA compliance, but the Service should consider bringing non-agency scientists that work with the focal endangered species into consultation when forging new management plans such as the ICP or GCP. Scientific literature is cited in the document, albeit sometimes inaccurately, but other important studies that are relevant to this plan are not referenced. Doing so would frame the plan more firmly in the science.***

<u>2. 2014 AMERICAN BURYING BEETLE OKLAHOMA PRESENCE/ABSENCE LIVE-TRAPPING SURVEY GUIDANCE</u>

***Note: the Service did not include page numbers on this document, so comments are noted by heading region of the document (eg. consider including page numbers on all documents).***

2a. Seasonal Parameters, Time of Year for Surveys: "Surveys may continue until the first night when the minimum temperature falls below 60°F after August 31, which signifies the end of the ABB active season". ***We are not sure what the Service means by the "end of the ABB active season", but this is a scientifically suspect statement if it is meant to refer to the species' biology. ABBs are clearly active beyond the point at which a single night below 60 degrees F is reached. The implications for shutting down survey activity based upon this metric could result in a reduction in the overall number of surveys conducted. This could be important since the current recovery effort depends almost entirely on industry-related ABB surveys. A reduction in overall survey data then has implications for the Service's CPA calculations; this could lead to a reduction in CPA area merely because of the reduction in surveys conducted. This could lead to a substantial reduction in the period over which proponents can survey for ABB presence.***

2b. Trap Deployment; Minimum Survey Effort (Temporal Scale); To determine presence/absence of ABBs, surveyors should set traps for a minimum of five (5) consecutive nights (Bedick et al 2004). ***This citation of Bedick et al 2004 is not accurate. Bedick did not conduct surveys for 5-nights in this paper, and simply adds in an unsubstantiated ad hoc***

***reference to 5-night trapping (probably at the behest of a reviewer) that was not tested empirically in the study. See table 2 of Bedick 2004 for details, and most importantly the methods section for the broader study, in context.***

2c. Trap Spacing and Placement; "…and along the upwind edge of the survey area, if possible". ***This reference to wind direction and trap placement will be unclear and confusing to the proponents. In the previous section the Service describes the radii of attraction of traps, but here you ask the surveyor to (while placing the trap out during the day ostensibly) make assumptions about wind direction at the time when ABBs are active later at night. This will only lead to wild speculation and variance with respect to how traps are deployed. This statement should be removed ASAP.***

2d. Baiting and Checking Traps; "Surveyors should store the bait outside in airtight containers for 3 to 7 days, depending on the temperature and other weather conditions". ***Again, this statement is not informed by practice or science, and should be amended to read "2-3 days, or until adequately aged to produce a sufficiently robust odor". Leaving a carcass or carrion in a closed container in the Oklahoma summer for 3-7 days will lead to a liquefied emulsion (read, mess) that will not produce a reliable chemical signal over several days. This portion of the ABB survey guidance should be changed BEFORE the current ABB active season.***

2e. Processing Captures, Identification and processing of Nicrophorus Species; "ABBs are sensitive to prolonged heat exposure. Surveyors cannot hold captured ABBs for longer than 30 minutes, preferably much less. If more than 10 minutes is required for processing, surveyors should place ABBs in a hard plastic container with a damp sponge, which should be stored in an ice cooler until processing commences". ***The Service should include a statement that explicitly advises proponents to keep the container in which ABBs are held out of any direct sunlight.***

2f. Processing Captures, Identification and processing of Nicrophorus Species; "Calipers should be utilized if the surveyor desires to measure the pronotum or other features of individuals". ***In our opinion this process provides undue stress to the ABBs, replicating in fact an attack by an avian predator. It also introduces wide inter-observer error. The Service should consider having proponents measure pronotal width using images taken in the field on a piece of grid paper and analyzed using the freeware ImageJ (http://imagej.nih.gov/ij/). Simple instructions and procedures for doing so, and that are currently in use by several laboratory groups working with the species, can be provided to the Service.***

2g. Processing Captures, Identification and processing of Nicrophorus Species; "Release ABBs near (within 609 meters/2,000 feet) the transect where they were captured…". ***This distance nearly equals the effective trap radius noted in the Trap Spacing and Placement section. We would encourage the Service to reduce this to within 200 meters of the site of capture, which is only 25% of the trap radius, and would keep the animal in the area in which it was captured and reduce the influence of unintended anthropogenic relocation.***

2h. Reporting Procedures; Surveyors should collect the necessary precipitation, temperature, and wind information from the weather station closest to the survey site, which can be found at http://www.wunderground.com/history/ (or other appropriate weather-reporting website, such as a Mesonet site that would provide the required data). ***This is perhaps the portion of the revised ABB survey guidance most in need of an improved solution. WeatherUnderground.com data are generally reported by the non-scientific public, and are known to be unreliable. The Service should find a more reliable source if the data is to be used in any way to inform management or policy. Data from this source would not be admissible in a scientific study, which leads to the question of why the Service would require that it be collected. Mesonet data is more reliable, is admissible in scientific research, but sites may not necessarily be close to a survey. It should also be noted that even highly reliable Mesonet data, with respect to soil moisture (i.e. 2-inch Fractional Water Index), cannot and should not be used to estimate soil moisture values at a site any distance from the Mesonet sensor. Soil***

***moisture is a microclimate parameter, and thus data from a site even within a mile of a Mesonet station will likely be quite different than that measured at the station. Again, this would not be admissible in a scientific study, and thus its collection with the intent to inform any management or policy is deeply questionable. In the absence of asking proponents to collect local weather data with a remote data logging solution (such as a Kestrel/Hobo data collecting unit) perhaps revise these guidelines to specify the use of the closest Mesonet station. This portion of the ABB survey guidance should be changed BEFORE the current ABB active season.***

2i. Location Data; "At each trap, a GPS location (in decimal degrees, NAD 83) and digital photograph must be taken to document the location of the trap and the general habitat characteristics of the trap site". ***The Service should specify the parameters of the required digital photograph based upon the proposed use of this digital data. It would be useful to proponents to know acceptable image sizes, DPI, and image format (JPEG, TIFF, etc.) and what exactly needs to be included in the captured image (scale of image). As included in the draft ICP these parameters remain unaddressed or ambiguous.***

2j. Accidental Death of ABBs. ***The Service should have all ABB mortalities preserved in either 70% Isopropyl (rubbing alcohol; easier) or preferably 70-90% ethanol (better) rather than preserving as dried specimens. Mortalities thus preserved should then be stored in a freezer until delivered to the Service or Service-approved Facility. This would allow the specimens to be scientifically useful.***

2k. Appendix A: Data Collection Form. ***Footnote #8 still refers to 3 survey nights; change to 5 survey nights consistent with current protocols.***